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ABSTRACT

The electronic dissemination of information via computer networks is having a considerable impact on educational institutions in terms of the mechanisms that they are able to employ for course delivery. As a result of this, the number of courses that are taught electronically through the Internet and/or the World Wide Web has increased considerably over the last few years. Such courses require two fundamental types of resource: appropriately designed electronic course materials (for students to study) and a network of online tutors, who can provide active support, advice and encouragement for students. This paper discusses the nature of the skill sets needed by online tutors in order to fulfill their roles effectively and efficiently within an online learning community. Some mechanisms for acquiring these skills are also briefly discussed. (Contains 19 references, 4 tables, and 1 figure.) (Author)

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# Skill Sets for Online Teaching

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**Abstract:** the electronic dissemination of information via computer networks is having a considerable impact on educational institutions in terms of the mechanisms that they are able to employ for course delivery. As a result of this, the number of courses that are taught electronically through the Internet and/or the World Wide Web has increased considerably over the last few years. Such courses require two fundamental types of resource: appropriately designed electronic course materials (for students to study) and a network of online tutors who can provide active support, advice and encouragement for students. This paper discusses the nature of the skill sets needed by online tutors in order to fulfil their roles effectively and efficiently within an online learning community. Some mechanisms for acquiring these skills are also briefly discussed.

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## Introduction

Electronic teaching through the Internet and the World Wide Web is rapidly becoming an established practice in many educational institutions. This is particularly the case in situations where there is a need for flexible course provision and/or a demand for 'time and place' independence of course delivery (Beckstrand et al, 2001; 2002). Non-academic institutions are also using 'e-learning' techniques as a mechanism for facilitating staff training, reducing the costs of training, improving the effectiveness of educational delivery and providing continuing professional development opportunities.

Naturally, designing electronic courses for online delivery is, in many ways, different from the ways in which conventional courses are developed and used. Indeed, according to Galpin (2001), *'simply taking a traditional classroom or paper-based experience and putting it online is not enough'*. Techniques for designing and supporting online courses are well-documented in the literature - see, for example, Thomas et al (1998), Lockwood and Gooley (2001) and Jolliffe, Ritter and Stevens (2001). Our own approach to electronic course design and delivery has been described in detail elsewhere (Barker, 1999; 2000; 2001; 2002). Essentially, the methodology involves the creation of four basic types of resource. First, an online corpus of study material (a teaching web) that students can access through an intranet or via the World Wide Web. Second, the use of computer-mediated communication to facilitate both synchronous and asynchronous computer conferencing activities. Third, the creation of shared workspaces to facilitate collaborative group working. Finally, the provision of appropriate assessment infrastructures to enable students (and staff) to monitor and gauge the progress they are making with the course.

Obviously, online teaching is different from face-to-face instruction. The main differences between the two approaches arise because teachers and students are not physically present together at the same geographical location. This absence of '*proximal presence*' has two important effects, which are briefly discussed below.

First, the shared environmental artefacts that may be present in a face-to-face teaching situation (such as walls and windows, posters, desks, books, students, and so on) are usually 'absent' from a distributed online teaching environment. Of course, within an online system, virtual analogues of these 'missing' objects may be generated in order to substitute for them. However, many of the more common approaches to online teaching do not do this due to the complexity of the software that is needed.

The second 'missing component' from online teaching environments is the various types of body language that are normally associated with small-group, face-to-face teaching situations. Within online teaching, various textual conventions are sometimes used to substitute for the absence of non-verbal communication – for example, the use of emoticons, various font styles for representing different modes of expression (such as the use of coloured text,

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italicisation, and so on) and iconic forms. However, these conventions have only met with various degrees of success (Yazdani and Barker, 2000).

Because online teaching is different from face-to-face instruction, it therefore requires different skill sets - both for the students who use the electronic resources (Montieth and Smith, 2001) and for the staff involved in supporting the various activities associated with a particular course (Duggleby, 2000; Salmon, 2000; Bennett and Marsh, 2002). Because of the growing importance of electronic course delivery and online tutoring, the remainder of this paper attempts to identify and discuss some of the staff roles and responsibilities associated with online teaching and learning - and the skill sets needed to undertake these activities.

## Possible Roles for Online Tutors

Within environments that utilise electronic course delivery, there are a number of different course 'development and delivery' scenarios. These are likely to require instructors to play several different roles. Bearing this in mind, Table 1 depicts some of the major roles that any particular individual may have to fulfil in relation to producing and/or using an online course.

**Table 1: Roles for Online Tutors**

| |
|---|
| - a member of a course design team |
| - the sole designer of a course and one of its online tutors |
| - an online tutor for courses produced by others |
| - a moderator and/or examiner for various courses |

It is easy to deduce from Table 1 that there are three basic types of involvement that an online tutor might have with any given online course. First, in the *development stage*, a tutor might become involved in various aspects of designing (and possibly, producing) an online course. Second, in the *delivery stage* of a given course, particular individuals (who might not have been involved in the development phase) might act as an online tutor for that course. Third, in the *assessment phases* of a course the tutor might be involved in various quality assessment or quality assurance activities.

Each of the above roles will have an appropriate skill set associated with it. Each skill set will require an appropriate mix of *pedagogic*, *technical* and *organisational* skills. The nature of these three skill sets is discussed in more detail in the following section of the paper.

## What Skills are Needed?

In order to undertake their responsibilities in an effective way, online tutors will need to be equipped with the skills and knowledge needed to perform the tasks that they are required to undertake. The detailed nature of these tasks is discussed elsewhere (Barker, 2002; Duggleby, 2000; Salmon, 2000). This section of the paper therefore briefly describes and discusses the three major skill sets (pedagogic, technical and organisational) that we believe are a necessary pre-requisite for effective online tutoring.

**(a) Pedagogic Skills**

Skills in this category relate to the ability of an online tutor to design and create teaching and learning materials for online use. There will normally be two contexts in which these resources might be used. In the first instance, they could form the *primary resource set* that students use in order to study and learn. Alternatively, they could constitute an *ancillary resource set* that is intended to complement a primary resource set that has been produced by someone else. Some of the important pedagogic skills needed to facilitate the design and development of these learning resource sets are listed in Table 2.

Most of the necessary skills in this category will be similar to those needed to prepare and use conventional teaching and learning resources. For example, topic research, knowledge structuring and the design of self-study tasks and assessment strategies are fairly generic activities that are applicable to virtually all modes of teaching. Naturally, it will be necessary to consider what special requirements need to be accommodated as a consequence of

using web-based delivery. This is especially so in the case of knowledge structuring - where electronic resources can be interlinked in many different ways that are not feasible with conventional media. Of course, the use of electronic resources also offers many pedagogic facilities (such as animation and interactivity) that may not be possible using conventional approaches to instruction.

**Table 2 Major Pedagogic Skills for Online Tutoring**

| |
|---|
| - Researching a Topic |
| - Knowledge Structuring |
| - Designing Individualised Self-Study Tasks |
| - Designing Group Work Activities |
| - Formulating Assessment Strategies |
| - Mentoring, Counselling and Advising |
| - Marking, Monitoring and Giving Feedback |

**(b) Technical Skills**

The skills in this category relate to the ability of an online tutor to use a range of different software tools in order to conduct his/her tutoring tasks in an effective and efficient way. Some of the more important of these tools are listed in Table 3.

**Table 3 Technical Skill Requirements for Online Tutoring**

| |
|---|
| - Using Electronic Mail |
| - Creating, Managing and Participating in Asynchronous Conferences |
| - Designing, Creating and Controlling Real-time Chat Rooms |
| - Using a Word Processor, Spreadsheet and Database |
| - Using Web Page Authoring Tools |
| - Using Special Purpose Software |

Although online tutors often use telephone, facsimile transmission and postal services in order to communicate with their students, by far the most important (and heavily used) mechanisms of communication are computer-mediated. Undoubtedly, electronic mail is probably the most widely used tool. This is used both to send 'simple' messages and 'compound' messages containing various types of attachment - such as text files, spreadsheets, sound and image files, multimedia documents, and so on. A variety of different computer conferencing tools (both synchronous and asynchronous) are also usually employed to facilitate teaching and learning tasks. These electronic tools, and the others identified in Table 3 are discussed in more detail elsewhere (Barker, 2002).

**(c) Organisational Skills**

Skills in this category refer to the ability of online tutors to organise their own activities as well as those of the students who are following the particular courses for which they are responsible. Some of the main skill requirements in this category are listed in Table 4.

**Table 4 Organisational Skills for Online Tutors**

| |
|---|
| - select and organise cohorts of students for group activities |
| - maintain online conference structures in a logical fashion |
| - structure and maintain students' demographic data |
| - collect and archive students' work for assessment |
| - archive and maintain personal teaching resources |
| - maintain administrative proformas and document templates |

As is the case in conventional teaching situations, one of the major organisational responsibilities that online tutors have to undertake is the facilitation of students' learning activities - especially for group work and projects. A useful way of achieving this is through the use of an electronic 'noticeboard'. Such a tool can be used to publish lists of students and details of group activities - for example, project specifications, milestones, deliverables and time schedules. Tools of this sort can be regarded as being a part of a broader organisational toolset that is provided within the framework of an 'electronic office' environment. Many organisations involved in electronic teaching and learning especially within a virtual campus context) now provide their network of online tutors with this type of facility - see, for example, the facilities at the Robert Gordon virtual campus at *http://campus.rgu.com*.

## Skill Acquisition Mechanisms

Any discussion of the skills that an online tutor needs to possess must also consider how these skills might be acquired. Naturally, there are two major issues that need to be discussed. First, we must consider how 'new' online tutors gain the skills that they need in order to participate in an effective way within an online learning community. Second, we should consider how established online tutors participate in 'professional updating' activities - that is, the mechanisms that they use in order to keep up to date with the new software systems, technologies and course modules that they may be required to use.

Ideally, the mechanisms for each of the above skill development processes should be found embedded within the online learning communities themselves. That is, the organisations responsible for providing courses for students should also provide online training opportunities for the network of tutors that is needed to support these courses. Many distance learning universities do in fact provide online courses and online training for their staff. The UK's Open University (OU), for example, uses its computer network infrastructure in order to provide online, interactive training for many of its tutors. As an example of this, the OU makes available online training for the *FirstClass* conferencing system (which it uses for many of its distance learning courses).

Many other universities also provide various online courses both for their own staff and for other people who want to find out more about electronic distance learning and online tutoring activities. The '*virtual campus*' at the Robert Gordon University in Scotland (*http://campus.rgu.com*), for example, has a number of online courses that visitors to the campus can study - see, for example, the '*Campus Induction Module*'. This module shows users how to: build an online office; access and use course materials; enter online discussions; join an online community; and use the virtual library. It also provides a series of 'top tips' for online learning.

The need for professional development opportunities for staff in the area of online learning, tutoring and distance education has been recognised by a number of authors - see, for instance, Salmon (2000), Montieth and Smith (2001), MacKenzie and Staley (2001), Bernath and Ruben (2001) and Bennett and Marsh (2002). Based on the results of their study into using a virtual campus, Montieth and Smith (2001: p. 126) report the finding that '*It is in the area of computer mediation we consider staff need more training ... staff skills with respect to mediation through CMC do require updating*'. Bennett and Marsh (2002) have reported similar findings. They suggest that '*... the majority of tutors new to online teaching do not have the background of online learning experience upon which to draw ...*'.

Various mechanisms for the provision of online training opportunities for academic staff have been explored. For example, in their research, Bernath and Ruben (2001) have described the use of a '*Virtual Seminar in Distance Education*' for facilitating training opportunities. This is an online, asynchronous discussion forum (based on the World Wide Web) that was designed to provide university faculty and administration with professional development in the field of distance education. The success of their research leads one to suggest that the provision of online training opportunities for online tutors is of paramount importance. This view is supported by the findings of Bennett and Marsh (2002) who have described their experiences in preparing 'new' online tutors for the roles they will play within an online electronic learning community. Their study outlines the nature of the training given to potential online tutors and how the effectiveness of this was evaluated. The results of their evaluation suggest that the '*online teaching practice may be the single most important element of the training and development process*'.

Naturally, as the roles of academic staff in higher education institutions change, there is obviously considerable scope for the introduction of online training courses that can provide adequate and appropriate skill development for the new tasks that tutors have to undertake.

## Using Online Learning for Skill Acquisition

One important approach that we have used for developing the skills needed to become an online tutor is through on-the-job training using an 'apprenticeship' model (Barker, 1994). In this situation, potential online tutors become involved in running tutorial and teaching groups in conjunction with an experienced and/or 'qualified' e-tutor. Another approach, that we are exploring, involves the creation of an online environment for facilitating skill development. The architecture for our proposed training facility is illustrated schematically in Figure 1.

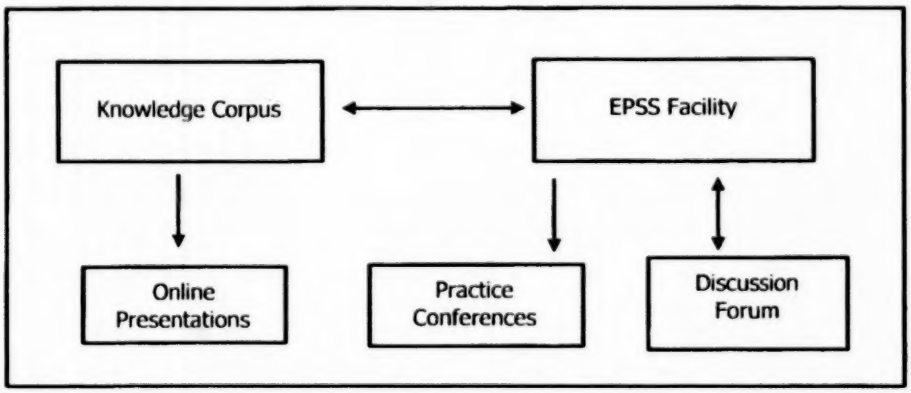


**Figure 1:** Skill acquisition environment for an online community of trainee e-tutors.

There are four important components within the skill development system: the knowledge corpus that documents the skill sets and procedures to facilitate their acquisition; an electronic performance support system (EPSS) that is able to assess the ability of a potential tutor and his/her current knowledge/skill levels and then recommend a 'course of study' for that tutor; various online presentations that are designed to facilitate knowledge/skill acquisition; a range of practice conferences; and a discussion forum. The latter two resources are particularly important because it is through these that new tutors can practice their skills, discuss any problems that they are having and share their experiences.

## Conclusion

For a variety of reasons, many academic (and non-academic) institutions are now becoming involved in electronic learning initiatives. There are two main 'driving forces' underlying the developments that are taking place. The first of these arises as a result of the need for many organisations to become involved in *computer-based distance education* involving the Internet and the World Wide Web. The second arises as a result of organisations wanting to take advantage of the many *pedagogic benefits* that online learning can bring. A computer-based network infrastructure (such as the Internet or an intranet) is able to facilitate two major educational objectives. First, the delivery of electronic learning resources in a flexible way that is independent of 'time and place'; and second, the realisation of 'educational conversations' between students themselves and with their tutors. Naturally, with the growing demand for online learning, it is important that students following particular courses are supported by an adequately trained network of online tutors. Such a requirement necessitates that we should identify the skill sets that online tutors need and then provide appropriate (online) infrastructures and mechanisms to enable the requisite skills to be developed. This paper has attempted both to identify some of the required skills and to suggest how the training mechanisms might be realised.

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